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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,179	04/19/2004	Chih-Huang Chang	10544-US-PA	3178

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JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER

HA, NATHAN W

ART UNIT	PAPER NUMBER
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2814

NOTIFICATION DATE	DELIVERY MODE
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06/06/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USA@JCIPGROUP.COM.TW

Office Action Summary	Application No. 10/709,179	Applicant(s) CHANG ET AL.	
	Examiner Nathan W. Ha	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1- and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Klein et al (US 7,335,994, newly cited, hereinafter, Klein.)

3. In regard to claim 15, in figs. 1c-7i, Klein discloses a method fabricating bumps 18 on a backside 72 of a chip 14, comprising the steps of:

providing the chip with an active surface (opposite to the active surface 72, or circuit side 46) having at least a bonding pad (or bump contact pad) 68 thereon and the backside;

forming a passivation layer (or insulating layer) 58 on the backside of the chip and forming a protective film 50 on the active surface of the chip (all these steps can be seen in figs. 5A-5C);

forming at least a bump pad (or contact pad) 56 on the backside of the chip; and

forming a bump 18 directly on the bump pad. See figure 7G-7H.

In regard to claim 16, wherein the step of forming the bump pad on the backside of the chip further comprises:

forming a metallic layer (also layer 56 and the layer is patterned, see paragraph [0090] on the backside of the chip; and
patterning the metallic layer to form the bump pad.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klein as applied to claims 15-16 above, and further in view of Akram (US 6,861,763, previously cited.)

In regard to claims 17-19, Klein discloses all of the claimed limitations as mentioned above. Klein further discloses a conventional process of making the pads on the first chip 12. The pads are formed by using the insulating layer as a mask by a known technique such as patterning and developing a photo mask layer and then etching through the material. Klein however, does not disclose the use of this conventional process in the step of forming the pads on the chip 14.

Nevertheless, Akram, in fig. 6A, discloses an analogous package includes chip 12 pad 14, mask 30C wherein mask layer, or passivation layer, has an opening so the chip is exposed and forming a metallic layer 14 over the mask and the exposed portion of the chip. This opening further provides access to the to the chip for electrical

connections. The mask or passivation layer then further removed to form a solder ball therein.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to recognize opening portions on the chip in order to provide electrical connections.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klein as applied to claim 15 above, and further in view of Koh (US 2004/0135266, previously cited.)

In regard to claim 20, Klein discloses all of the claimed limitations as mentioned above. Klein further points out that the wire bonding process is a well known process in making solder bumps, or ball bonding, or pin bonding as shown in figs. 8A-8C. However, Klein does not expressly disclose that the bumps are formed exclusively by such process. It should be noted that wire bonding is widely used in the semiconductor package to form wire connections, bonding pad, and solder balls since it is widely available and provides easy access to such small area on the chip. Nevertheless, Koh, in fig. 3, also strongly points out the use of this process to form solder bumps. See also Koh's paragraph [0003] where it discusses the well known of such process.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to recognize the well known method as taught by Klein/Koh in order to facilitate the method of forming electrical connection elements.

Response to Arguments

7. Applicant's arguments with respect to claim 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2814

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Nathan W. Ha/
Primary Examiner, Art Unit 2814